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II. CLAIM AMENDMENTS

1. (Currently Amended) A method for coding an audio signal~~, characterized in that the method~~ comprisinges at least the following:

examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

producing a set of predicted signals on the basis of the substantially corresponding part of the audio signal using a set of pitch predictor orders,

determining a coding efficiency for at least ~~one~~ two of said predicted signals by using information indicative of said part of the audio signal to be coded,

using the determined coding efficiency to select a coding method for the part of the audio signal to be coded, and

using the determined coding efficiency to select a pitch predictor order for the selected coding method by comparing the coding efficiencies determined for said at least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency, if the audio signal is coded on the basis of a predicted signal in the selected coding method.

2. (Original) The method according to claim 1, characterized in that the selectable coding methods comprise a method in which the audio signal to be coded is coded on the basis of a predicted signal.

3. (Original) The method according to claim 2, characterized in that the selectable coding methods comprise a method in which the audio signal to be coded is coded on the basis of the audio signal itself.

4. (Original) The method according to claim 1, characterized in that a coding error is determined for each of said predicted signals.

5. (Original) The method according to claim 4, characterized in that the coding efficiency is defined for the predicted signal having the smallest said coding error, and that the coding is performed on the basis of the predicted signal having the smallest said coding error if the determined coding efficiency information indicates that the amount of coded information is less than if the coding is performed on the basis of the part of the audio signal to be coded.

6. (Original) The method according to claim 5, characterized in that the part of audio signal to be coded is transformed into the frequency domain to determine the frequency spectrum of the audio signal, and each predicted signal is transformed into the frequency domain to determine the frequency spectrum of each predicted signal, and that said coding efficiency is determined for said predicted signal having the smallest coding error on the basis of the frequency spectrum of the audio signal, and the frequency spectrum of the predicted signal.

7. (Original) The method according to claim 1, characterized in that a coding efficiency is determined for each of said predicted signals and a coding error is determined for those predicted signals for which the determined coding efficiency information indicates that the amount of coded information is

less than if the coding is performed on the basis of the part of the audio signal to be coded and the coding is performed on the basis of the predicted signal that provides the smallest coding error.

8. (Original) The method according to claim 1, characterized in that a coding efficiency is determined for each of said predicted signals and the coding is performed on the basis of the predicted signal that provides the highest coding efficiency, if the determined coding efficiency information indicates that the amount of coded information is less than if the coding is performed on the basis of the part of the audio signal to be coded.

9. (Original) The method according to claim 1, characterized in that a coding efficiency is determined for each of said predicted signals and the coding is performed on the basis of the predicted signal that provides the highest coding efficiency.

10. (Previously Amended) The method according to claim 7, characterized in that the part of audio signal to be coded is transformed into the frequency domain to determine the frequency spectrum of the audio signal, and each predicted signal is transformed into the frequency domain to determine the frequency spectrum of each predicted signal, and that said coding efficiency is determined for each predicted signal on the basis of the frequency spectrum of the audio signal, and the frequency spectrum of the predicted signal.

11. (Previously Amended) The method according to claim 5, characterized in that prediction error information is determined for each of said predicted signals.

12. (Previously Amended) The method according to claim 5, characterized in that said predicted signals are formed by using a different prediction order for each of said predicted signals.

13. (Previously Amended) The method according to claim 6, characterized in that said prediction error information determined for each of said predicted signals is calculated as a difference spectrum representing using said frequency spectrum of the audio signal and the frequency spectrum of the predicted signal.

14. (Previously Amended) The method according to claim 10, characterized in that the transformation to the frequency domain is conducted using a modified DCT transform.

15. (Previously Amended) The method according to claim 1, characterized in that the coded information (501) of the predicted signal comprises at least data relating to the coding method (502), data relating to the selected order (504), a lag (505), pitch predictor coefficients (506) and data relating to the prediction error (507).

16. (Previously Amended) The method according to claim 1, characterized in that the audio signal is divided into frames, wherein the coding is performed separately for each frame formed from the audio signal.

17. (Previously Amended) The method according to claim 1, characterized in that the audio signal is a speech signal.

18. (Previously Amended) The method according to claim 4, characterized in that said coding error is determined using one of the following:

at least squares method;

a method based on psychoacoustic modelling of the audio signal to be coded.

19. (Original) The method according to claim 18, characterized in that if said coding error is determined using the least squares method, the coding error is calculated from the prediction error.

20. (Previously Amended) The method according to claim 1, characterized in that said coded audio signal is transmitted to a receiving device.

21. (Currently Amended) A data transmission system ~~which~~ comprising~~es~~:

means ~~(16, 20)~~ for coding an audio signal, ~~characterized in that the data transmission system also comprises:~~

means ~~(7, 8)~~ for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means ~~(9, 10)~~ for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means ~~(12)~~ for determining a coding efficiency for at least ~~one~~ two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means ~~(12, 13, 14)~~ for using the determined coding efficiency to select a coding method for the part of the audio signal to be coded,

means ~~(12, 13, 14)~~ for using the determined coding efficiency to select a pitch predictor order for the selected coding method by comparing the coding efficiencies determined for said at least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency when the audio signal is coded on the basis of a predicted signal in the selected coding method, and

means ~~(16)~~ for transmitting the coded audio signal.

22. (Original) The data transmission system according to claim 21, characterized in that it comprises means for determining a coding error for at least one of said predicted signals.

23. (Original) The data transmission system according to claim 21, characterized in that it comprises means for transforming the part of audio signal to be coded into the frequency domain, and means for transforming each predicted signal into the frequency domain.

24. (Currently Amended) The data transmission system according to claim 21, characterized in that it comprises means to form a bit string (15) for transmission to a receiving device, said bit string comprising at least information concerning the selected coding method.

25. (Previously Amended) The data transmission system according to claim 21, characterized in that it comprises means for dividing the audio signal into frames.

26. (Previously Amended) The data transmission system according to claim 21, characterized in that it comprises a mobile terminal.

27. (Currently Amended) An encoder ~~(1) which~~ comprisinges:

means ~~(16, 20)~~ for coding an audio signal~~, characterized in that the encoder comprises:~~

means ~~(7)~~ for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means ~~(9, 10)~~ for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means ~~(12)~~ for determining a coding efficiency for at least ~~one~~ two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means ~~(12, 13, 14)~~ for using the determined coding efficiency to select a coding method for the part of the audio signal to be coded, and

means ~~(12, 13, 14)~~ for using the determined coding efficiency to select a pitch predictor order for the selected coding method by comparing the coding efficiencies determined for said at least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency when the audio signal is coded on the basis of a predicted signal in the selected coding method.

28. (Original) The encoder (1) according to claim 27, characterized in that it comprises means (4, 6-14) to code the audio signal on the basis of a predicted signal.

29. (Original) The encoder (1) according to claim 28, characterized in that it comprises means (4, 6, 14) to coder the audio signal itself.

30. (Original) A decoder (33) for decoding an audio signal coded in a encoder according to claim 27, characterized in that the decoder comprises means for determining the coding method of the audio signal to be decoded, and means for decoding the audio signal according to the determined coding method.

31. (Original) A decoder according to claim 30, characterized in that the decoder comprises means (21) for receiving information relating to a predicted signal.

32. (Original) A decoder according to claim 31, characterized in that the decoder comprises means (24, 28) for producing a predicted signal on the basis of the received information.

33. (Previously Amended) A decoder according to claim 31, characterized in that the decoder comprises means (21) for determining from said received information at least data relating to a selected order (504), a lag (505), at least one pitch predictor coefficient (506) and prediction error data (507).

34. (Original) A decoder according to claim 33, characterized in that it comprises means (24, 28) for producing a predicted signal using said data relating to a selected order (504), a lag (505), and at least one pitch predictor coefficient (506).

35. (Previously Amended) A decoder according to claim 33, characterized in that it comprises means (23, 24, 28) for producing a reconstructed audio signal using said predicted signal and said prediction error data.

36. (Original) A decoder according to claim 30, characterized in that it comprises means (21) for receiving information relating to the audio signal itself.

37. (Original) A decoder according to claim 36, characterized in that it comprises means (22, 23, 26) for producing a reconstructed audio signal using said received information relating to the audio signal itself.

38. (Original) A method for decoding an audio signal which is coded according to the method of claim 1, characterized in that the coding method of the audio signal to be decoded is determined, and the decoding is performed according to the determined coding method of the audio signal.

39. (Original) A method according to the claim 38, characterized in that the coding method is one of the following alternatives:

A method in which the audio signal is coded using a pitch predictor of a given order,

A method in which the audio signal is coded on the basis of the audio signal itself.

40. (New) method for coding an audio signal comprising at least the following:

examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

producing a set of predicted signals on the basis of the substantially corresponding part of the audio signal using a set of pitch predictor orders,

determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

using the determined coding efficiency to select a coding method for the part of the audio signal to be coded,

determining a coding error for said at least two of said predicted signals,

using the determined coding error to select a pitch predictor order for the selected coding method, by comparing the coding errors determined for said at least two predicted signals and selecting the pitch predictor order which produces the smallest coding error, if the audio signal is coded on the basis of a predicted signal in the selected coding method.

40. (New) A method for coding an audio signal comprising at least the following:

examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

producing a set of predicted signals on the basis of the substantially corresponding part of the audio signal using a set of pitch predictor orders,

determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

using the determined coding efficiency to select a coding method for the part of the audio signal to be coded,

determining a prediction error for said at least two of said predicted signals,

using the determined prediction error to select a pitch predictor order for the selected coding method, by comparing the prediction errors determined for said at least two predicted signals and selecting the pitch predictor order which produces the smallest prediction error, if the audio signal is coded on the basis of a predicted signal in the selected coding method.

42. (New) A method for coding an audio signal comprising at least the following:

examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

producing a set of predicted signals on the basis of the substantially corresponding part of the audio signal using a set of pitch predictor orders,

determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded, and

using the determined coding efficiency to select a pitch predictor order for the selected coding method, by comparing the coding efficiencies determined for said at least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency.

43. (New) An encoder comprising:

means for coding an audio signal,

means for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means for determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means for using the determined coding efficiency to select a coding method for the part of the audio signal to be coded, and

means for using the determined coding efficiency to select a pitch predictor order for the selected coding method by comparing the coding efficiencies determined for said at

least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency when the audio signal is coded on the basis of a predicted signal in the selected coding method.

44. (New) The encoder according to claim 43 comprising:

means for calculating a reference value for each said at least two of said predicted signals indicative of the coding efficiency of the respective pitch predictor order; and

means for comparing said reference values with each other;

wherein said means for using the determined coding efficiency are adapted to select the pitch predictor order on the basis of the smallest reference value.

45. (New) An encoder comprising:

means for coding an audio signal,

means for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means for determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means for using the determined coding efficiency to select a coding method for the part of the audio signal to be coded,

means for determining a coding error for said at least two of said predicted signals, and

means for using the determined coding error to select a pitch predictor order for the selected coding method by comparing the coding errors determined for said at least two predicted signals and selecting the pitch predictor order which produces the smallest coding error when the audio signal is coded on the basis of a predicted signal in the selected coding method.

46. (New) An encoder comprising:

means for coding an audio signal,

means for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means for determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means for using the determined coding efficiency to select a coding method for the part of the audio signal to be coded,

means for determining a prediction error for said at least two of said predicted signals, and

means for using the determined prediction error to select a pitch predictor order for the selected coding method by comparing the prediction errors determined for said at least two predicted signals and selecting the pitch predictor order which produces the smallest prediction error when the audio signal is coded on the basis of a predicted signal in the selected coding method.

47. (New) An encoder comprising:

means for coding an audio signal,

means for examining a part of the audio signal to be coded to find another part of the audio signal which substantially corresponds to the part of the audio signal to be coded,

means for using a set of pitch predictor orders to produce a set of predicted signals on the basis of the substantially corresponding part of the audio signal,

means for determining a coding efficiency for at least two of said predicted signals by using information indicative of said part of the audio signal to be coded,

means for using the determined coding efficiency to select a pitch predictor order for the selected coding method by comparing the coding efficiencies determined for said at least two predicted signals and selecting the pitch predictor order which produces the highest coding efficiency.